

REMARKS

Status of Claims

Claims 1-9 and 11-20 are pending in the application. Claims 1-9 and 11-20 stand rejected. Claims 13 and 14 are canceled.

Claim Rejections

Rejection Under 35 U.S.C. §103(a)

The Examiner has rejected claims 1-9 and 11-20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 4,185,163 issued to Helmet Schedele (hereinafter referred to as “Schedele”) in view of U.S. Patent 6,337,614 issued to Kazuhiro Tsutsui (hereinafter referred to as “Tsutsui”) and in further view of U.S. Patent 6,252,479 issued to Kern et al. (hereinafter referred to as “Kern”).

More specifically, with reference to the independent claims 1, 11, and 19, the Examiner generally asserts that Schedele discloses a magnet system for a relay [Figures 5 and 6]. The magnet system having: a core [Figure 5, center portion of multi-component yoke 25 through the coil] partially enclosed by a coil [24]; a yoke [left portion of multi-component yoke 251 having a first yoke leg attached to a first end of the core [left portion of multi-component yoke 25 perpendicular to the core] and a second yoke leg extending parallel to the core [left portion of multi-component yoke 25 above the coil 241, the second yoke leg having an armature mounting portion [figure 51 formed on an upper side of the second yoke leg remote from the coil]; a pole [right portion of multi-component yoke 251 having a first pole leg [right portion of multi-component yoke 25 perpendicular to the core] connected to a second end of the core and a

second pole leg extending parallel to the core [right portion of multi-component yoke 25 above the coil 24], the second pole leg having an upper surface substantially aligned with the armature mounting portion such that when an armature [26] is mounted on the armature mounting portion, a working air gap is formed between a coil-side armature face and the upper surface of the second pole leg [Figure 51]; a fixed contact carrier [29] with a fixed contact [29]. Additionally, the Examiner asserts that Schedele shows a contact carrier [29] secured by insulating blocks [30 and 31], but fails to teach exactly how the fixed contact carrier is secured to the insulating blocks. Rather, the Examiner asserts that Tsutsui discloses a magnet system for a relay [figure 31 wherein the contact carrier [60] has side portions [66, 67] that extend from the fixed contact carrier [60] and hold the contact carrier in coil pockets [47, Figure 3]. In conclusion, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the contact carrier of Schedele with side portions to hold the contact carrier in coil pockets as shown by Tsutsui in order to secure the contact carrier and fixed contacts inside the relay.

The Examiner admits that Schedele in view of Tsutsui fails to teach that the magnet system is extrusion coated with a plastic material, the coil, the yoke, the pole, and the fixed contact carrier being embedded in the plastic material. Instead, the Examiner that Kern teaches an electromagnetic relay wherein the magnet system is extrusion coated with a plastic material [11, 31], the coil [34], the yoke [61], the pole [62], and the fixed contact carrier being embedded in the plastic material. In conclusion, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to extrusion coat the magnet system Schedele in view of Tsutsui as shown by Kern in order to increase the reliability of the

relay by protecting the components from wear and tear by sealing them from the external environment.

The Applicants respectfully disagree with the Examiner's finding that the Schedele-Tsutsui-Kern combination renders claims 1-9 and 11-20 obvious, considering that the Schedele-Tsutsui-Kern combination does not teach or suggest each and every element of independent claims 1, 11 and 19, as amended. As amended, independent claims 1, 11, and 19 recite, inter alia, a relay having an armature mounting portion, a pole leg and a fixed contact carrier, having side portions that extend from the fixed contact carrier and hold the fixed contact carrier in pockets of a side arm of a coil body with a flange such that a fixed contact positioned on the fixed contact carrier is arranged parallel to surfaces of the armature mounting portion and the pole leg that is positioned between the side arm and the flange.

More specifically, Schedele generally teaches a housing assembly for an electromagnetic relay including a coil 24, a multi-component yoke 25, contact springs 28, an intermediate actuating element 27, an armature 26 actuating contact springs 28 through element 27, and a central contact 29 - a fixed contact carrier with a fixed contact secured on the magnet system by insulating block 31 (see Figs. 5 and 6, col. 4, lines 55-65). The Examiner clearly is relying on the central contact, as taught in Schedele, as the contact carrier, as required in the claim. The Examiner admits that Schedele fails to teach the contact carrier as required, especially a contact carrier having side portions that extend from the contact carrier and held in pockets of the side arm of the coil body. Clearly, Schedele teaches a structure where contacts [28, 29] are clearly secured by insulating blocks 30 and 31, which are positioned away from the coil.

Tsutsui generally discloses a magnet system for a relay (see Fig. 3) wherein a coil terminal 60 - a contact carrier has corner portions 66 and 67 that extend from contact carrier 60 and hold the contact carrier in coil pockets 16 and 47 via a insertion direction parallel to the surface of the fixed contacts. The Examiner relies on the Tsutsui structure, concluding that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the contact carrier of Schedele with side portions to hold the contact carrier in coil pockets as shown by Tsutsui in order to secure the contact carrier and fixed contacts inside the relay. The Applicant disagrees considering that Schedele and Tsutsui cannot be combined to arrive at the claimed invention, even as amended. More specifically, the contacts 28, 29 are clearly secured by insulating blocks 30 and 31, and not a coil body. Furthermore, Schedele nor Tsutsui teach a structure where the fixed contact carrier is arranged parallel to surfaces of the armature mounting portion and the pole leg that is positioned between a side arm and a flange of a coil body. That which Schedele and Tsutsui lack is neither taught nor suggested by Kern.

Generally, Kern discloses a relay having a first half-shells 1 formed by extrusion-coating of a coil 3 having a U-shaped core 6 and a second half-shell 2 formed by extrusion-coating of a spring support 21 and mating contacts 22 and 23, wherein a contact spring 4 with a flat armature 5 is attached to the spring support 21 and the relay is sealed by joining the two half-shells (see Figs. 1 and 9). Again, Schedele, Tsutsui, nor Kern teach a structure where the fixed contact carrier is arranged parallel to surfaces of the armature mounting portion and the pole leg that is positioned between a side arm and a flange of a coil body.

Furthermore, the Applicant would like to point out that there is simply no motivation to combine the references of Schedele and Tsutsui since such a combination would not result in the

contact carrier being fixed in Schedele as simply as what Schedele disclosed. Moreover, as Figures 3 and 4 show, Tsutsui teaches corner portions 66 and 67 of fixed terminal 60 are concurrently inserted into recesses 16 and 47, while projections 71 and 72 are press-fit into recesses 11 and 41, respectively. As a result, fixed terminal 60 is stably mounted with both corner portions 66 and 67 and projections 71 and 72 (col. 7, lines 14-17 and 41-59), that is, corner portions 66 and 67 cannot secure fixed terminal 60 in the position without press-fitted projections 71 and 72. Combining Schedele and Tsutsui would drastically change the structure of Schedele. And as a result, one of reasonable skill would have no motivation to change a central contact 29 in Schedele by the teaching of Tsutsui with side portions to hold the contact carrier in coil pockets in order to secure the contact carrier and fixed contacts inside the relay because no side portions of the contact carrier are required, as the claimed invention requires in the independent claims 1, 11 and 19, to achieve contact carrier being secured by insulating blocking 31 on Schedele's magnetic system. For the type of problem encountered in the art, Schedele cannot be combined with the teaching of Tsutsui to arrive at a fixed contact carrier having side portions that hold the fixed contact carrier in pockets of the coil, which is arranged closer to the core in a lower plane to optimize installation space. Unmistakably, the Schedele structure lacks a fixed contact carrier that is arranged parallel to the surfaces of an armature mounting portion and a pole leg that is positioned between a side arm and a flange of a coil body. Neither Tsutsui nor Kern teach what Schedele lacks. For the reasons presented herein, the Applicants believe that the rejections of claims 1, 11 and 19 and those that depend there from, namely 2-9, 12, 15-18 and 20 are clearly erroneous. Reversal of the rejections and allowance of the subject application is respectfully requested.

Conclusion

For all of the foregoing reasons and in view of the foregoing amendments, the Applicants respectfully contend that the application is now in condition for allowance. Accordingly, the Applicants respectfully request entry of the foregoing amendments, reconsideration and allowance of claims 1-9, 11, 12, and 15-20 and issuance of a Patent for the subject invention. If the Examiner cares to discuss anything presented here to further prosecution of this application, he is invited to contact the undersigned Attorney for the Applicants. Please charge any additional requisite fees relating to this amendment and response to Deposit Account No. 501581.

Respectfully submitted,

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